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THE DESIGN AND IMPLEMENTATION OF A

JOB REDESIGN INTERVENTION

THESIS

Thomas E. Connors
Captain, USAF

AFIT/GLM/LSR/88S-13

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY

Wright-Patterson Air Force Base, Ohio

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THE DESIGN AND IMPLEMENTATION OF A
JOB REDESIGN INTERVENTION

THESIS

Presented to the Faculty of the School of Systems and Logistics

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THOMAS E. CONNORS

Captain, USAF

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Abstract

The purpose of this study was to determine the specific
factors contributing to morale problems of company grade
officers in an Air Force Program Control office. Several
diagnostic tools were used for this purpose including an
open-ended survey designed and distributed by the employees,
employee interviews conducted by an external consultant, and
a survey questionnaire distributed by the external
consultant. The survey questionnaire incorporated parts of
the Job Diagnostic Survey, the Minnesota Satisfaction
Questionnaire and also items pertaining to the issues of
training, challenge, and the matrix organization. This
survey was distributed to the target organization and two
comparison groups, one with similar organizational structure
and duties, and another without the matrix organization
structure.

The data were collected and corpared to normative data
collected on the five core dimensions of the Job
Characteristics Model. This analysis showed that the
problems that do exist are not isolated to the target
organization and therefore may be job related. A Job
Redesign Team was formed of employees from the target
organization. Using the information collected, the Job
Redesign Team will submit to management a written proposal

for job redesign. Management will have final approval authority over the actual job redesign to be implemented.

This study completes the diagnostic phase of this project. If the organization and the field of job redesign are to realize any tangible benefits, the project should continue to the implementation and evaluation phases.

THE DESIGN AND IMPLEMENTATION OF A JOB REDESIGN INTERVENTION

I. Introduction

Chapter Overview

This chapter contains a general background on the morale and job satisfaction problems experienced by company grade officers in an Air Force Program Control office (ACP). The specific problem under investigation will be stated along with research objectives, research hypotheses and scope of study.

Background

The Program Control office of a southeastern Air Force Base had been experiencing morale problems with company grade officers, particularly among the Acquisition Program Managers and Cost Analysts. Feedback sessions held between these officers and the Commander indicated many were not satisfied with their current jobs. Complaints expressed the concern that many of the officers who had technical degrees felt their technical background and training were being wasted in their current positions. Opinions concerning the degree of difficulty of the work were also expressed. Many officers felt the tasks could easily be handled by people of lower rank and less training. Other concerns such as the

perceived importance of the work and a lack of
responsibility had also been verbalized.

The help of an external consultant was requested to
determine the specific factors contributing to poor morale
within this organization. The organization Commander had
observed problems with morale, productivity, and retention
of quality people. He also believed this problem was not
isolated to the study organization only.

Statement of Problem

An internal open-ended job satisfaction questionnaire
was designed and distributed within the Program Control
Office before an outside consultant was engaged. Despite
the small sample of respondents, a content analysis of the
responses indicated a definite problem existing among
company grade officers concerning several job satisfaction
issues. The content analysis, a portion of which is
depicted in Table 1, indicated several potential problem
areas. Specifically, 66% of the respondents indicated
problems with general job satisfaction. Fifty-seven percent
of the respondents reported a lack of mission involvement,
and 66% indicated a lack of challenge in the job. Finally,
75% of the respondents felt their peers were experiencing
the same problems. The complete content analysis is located
in Appendix A.

Table 1: Excerpts from the Content Analysis

Item 7: Are you happy in your current job?

Response	Frequency
A. Yes	4
B. No	8

Item 9: Do you feel involved and important to the office and its mission?

Response	Frequency
A. Yes	4
B. No	7
C. Yes and No	1

Item 11: Is your work challenging?

Response	Frequency
A. Yes	3
B. No	8
C. Yes and No	1

Item 21: In your opinion, do your peers in other organizations have the same feelings that you have expressed in your survey?

Response	Frequency
A. Yes	9
B. No	0
C. N/A	3

This research sought to further clarify the primary issues and concerns facing this work force. After extensive diagnostic analysis, a job redesign intervention was designed and set in motion within the organization to increase job satisfaction.

Research Objectives

The overall objective of this research is to gather sufficient data from this organization and others like it to design an intervention that will eventually increase job satisfaction within this Program Control office. Directed toward this goal, the following specific objectives of this research are to:

1. Determine what factors are influencing job satisfaction of Company Grade officers in Program Control.

2. Determine what can be done to improve job satisfaction within Program Control.

3. Determine if the problem also exists in similar organizations.

4. Determine if similar problems exist in non-matrixed organizations.

Research Hypotheses

Based upon the literature review and the preceding discussion, the following hypotheses are posited:

1. It is hypothesized that Skill Variety will be lower in the target group than in comparison groups from other organizations.

2. It is hypothesized that Task Identity will be lower in the target group than in comparison groups from other organizations.

3. It is hypothesized that Task Significance will be lower in the target group than in comparison groups from other organizations.

4. It is hypothesized that their will be no significant difference in Autonomy between the three groups.

5. It is hypothesized that Job Feedback will be higher in the target group than in comparison groups from other organizations.

Scope of Study

This study does not consider civilians or enlisted personnel within ACP. The research does collect data from similar organizations for comparison purposes.

This study examined the attitudes and feelings of all company grade officers toward their jobs in Program Control offices at two separate divisions. Also, a group of officers in a non-matrixed organization were also studied. The research focused on determining deficiencies in the focal organization (relative to the comparison groups) on such factors as job satisfaction, job challenge, feedback, autonomy, job significance, job variety and goal attainment. The data analysis laid the foundation for the development and proposal of an intervention designed to increase job satisfaction of officers in the Program Control function of the organization.

II. Literature Review

Theoretical Basis

Organization Development (OD) is defined as an attempt
to achieve corporate excellence by integrating the desires
of individuals for growth and development with
organizational goals. According to Richard Beckhard
(1969,p.9),

"organization development is an effort (1) planned, (2)
organization wide, (3) managed from the top, (4) to increase
organization effectiveness and health, through (5) planned
interventions in the organizations processes using
behavioral science knowledge."

Organization development is a management discipline
aimed at improving organizational effectiveness by means of
planned, systematic interventions. It is an emerging
behavioral science discipline that provides a set of
methodologies for systematically bringing about organization
change and improvement. The goals of organization
development are to make the organization more effective and
to provide the opportunity for the individual to develop his
or her potential (Harvey & Brown, 1988).

Job Redesign

One of the most popular types of intervention used to
reach the goals set forth by OD is the use of job redesign.
Job redesign as an OD approach is not a new concept. The
design of jobs has been of concern to managers since 1911,
when Frederick Taylor introduced the Scientific Management

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approach to job design. The Scientific Management approach
attempted to break a job down into its simplest tasks so as
reduce the amount of error, training, skill, and supervision
required to accomplish it (Harvey & Brown, 1988). Also,
management control over production would increase along with
profits. More recently, studies have documented a variety
of unintended and unfortunate results of the trend toward
work simplification. It has been shown that simple, non-
challenging, routine jobs often lead to high employee
dissatisfaction. This is shown through such indicators as
high absenteeism, increased turnover, apathy, poor work
quality, and even industrial sabotage. Also, expectations
for increased profits were not always realized because of
problems encountered when the human element was not
considered in job redesign (Hackman & Lawler, 1971).

In response to these observations, a number of
researchers began experimenting with the idea of job
enlargement. The idea behind job enlargement was to design
jobs so they would be more meaningful and challenging to
employees. The literature on job enlargement indicates
success for the most part. However, job enlargement
experiments have frequently been reported as case studies
and lack the appropriate experimental controls (Hackman &
Lawler, 1971). Hulin and Blood (1968) review the research
literature on job enlargement and pay special attention to
procedural and methodological difficulties that might damage

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the validity of the findings. Also, job enlargement experiments typically involve a number of simultaneous changes to include the amount of variety in the work, the amount of responsibility required, and the importance of working with others. As a result, very little is known about which of the changes actually influence observed behavioral and attitudinal changes.

The next major theoretical development was the theory of Job Enrichment developed by Frederick Herzberg. Job enrichment theory holds that jobs should be redesigned to improve the motivators in a job by permitting employees to attain increased levels of responsibility and achievement. Employees may also be given appropriate recognition and advancement opportunities in their careers for a job well done. And finally, the work itself should be challenging, interesting, and meaningful. There are numerous techniques for improving these motivational factors and they should be tailored to fit specific situations. Several suggestions include:

1. Give an employee or work group a natural and complete unit of work.

2. Add more difficult assignments to an employee's job while providing appropriate training.

3. Give an employee additional authority. Allow them to make increasingly more difficult and important decisions.

4. Allow a peer in a group or team to become an expert in a specialized area.

5. Make information, including company reports, directly available to an employee instead of editing or censoring the information.

6. Remove controls over the employee while still holding the employee accountable (Harvey & Brown, 1988,p.340)

The Task Attributes Theory (Hackman & Lawler, 1971) was the next major theoretical phase of job design theory. This theory, which extended the work of Turner and Lawrence (1965), was one of the most widely studied and debated of the late 1970's. Hackman and Oldham (1971) argued that tasks may be described in terms of certain attributes which, in turn, influence employee motivation. The theory attempts to develop objective measures of job characteristics which directly affect employee attitudes and work behaviors. In 1976 this framework was more fully refined into the Job Characteristics Model (Hackman & Oldham, 1976). According to this model, work motivation and satisfaction are influenced by five core dimensions:

1. _Skill Variety_ - the degree to which a job requires a variety of different activities that involve the use of a number of different skills and talents

2. _Task Identity_ - the degree to which the job requires completion of a whole and identifiable piece of work.

3. _Task Significance_ - The degree to which the job has a substantial impact on the lives of other people, whether in the same organization or in the external environment.

4. _Autonomy_ - the degree to which the job provides substantial freedom, independence and discretion to the individual in scheduling the work and to determine the procedure used to carry it out.

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5.   _Job_ _Feedback_ - the degree to which carrying out the work activities required by the job results in the individual obtaining direct and clear information about the effectiveness of his or her performance (Hackman & Oldham, 1976).

The model postulates that the core dimensions influence three critical psychological states, experienced meaningfulness of the work, experienced responsibility for the outcomes of the work, and knowledge of the actual outcomes of the work activities. The psychological states shape, in turn, a range of work outcomes including internal work motivation, growth satisfaction, overall job satisfaction, work effectiveness, and absenteeism (Hackman & Oldham, 1976). Additionally, the model proposes three factors, knowledge and skill, growth need strength, and context satisfaction, which serve as moderators of both the job characteristics - critical psychological states relationships and the critical psychological states - work outcomes relationships. Finally, the model combines the five core job characteristics into a single index or motivating potential score (MPS) which reflects the overall potential of a job to influence the individual's feelings and behaviors. The Hackman and Oldham (1976) Job Characteristics Model is reproduced in Figure 1.

Hackman and Lawler (1971) maintain that objective job characteristics do not affect employee attitudes and behavior. Rather, it is how the job characteristics are experienced by employees that is critical. Regardless of

JOB CHARACTERISTICS MODEL

Core Job Dimensions	Critical Psychological States	Outcomes
Skill Variety	Experienced Meaningfulness	High Internal Motivation
Task Identity		High Quality Performance
Task Significance		
Autonomy	Experienced Responsibility	High Satisfaction with the Work
Feedback	Knowledge of Results	Low Absenteeism and Turnover
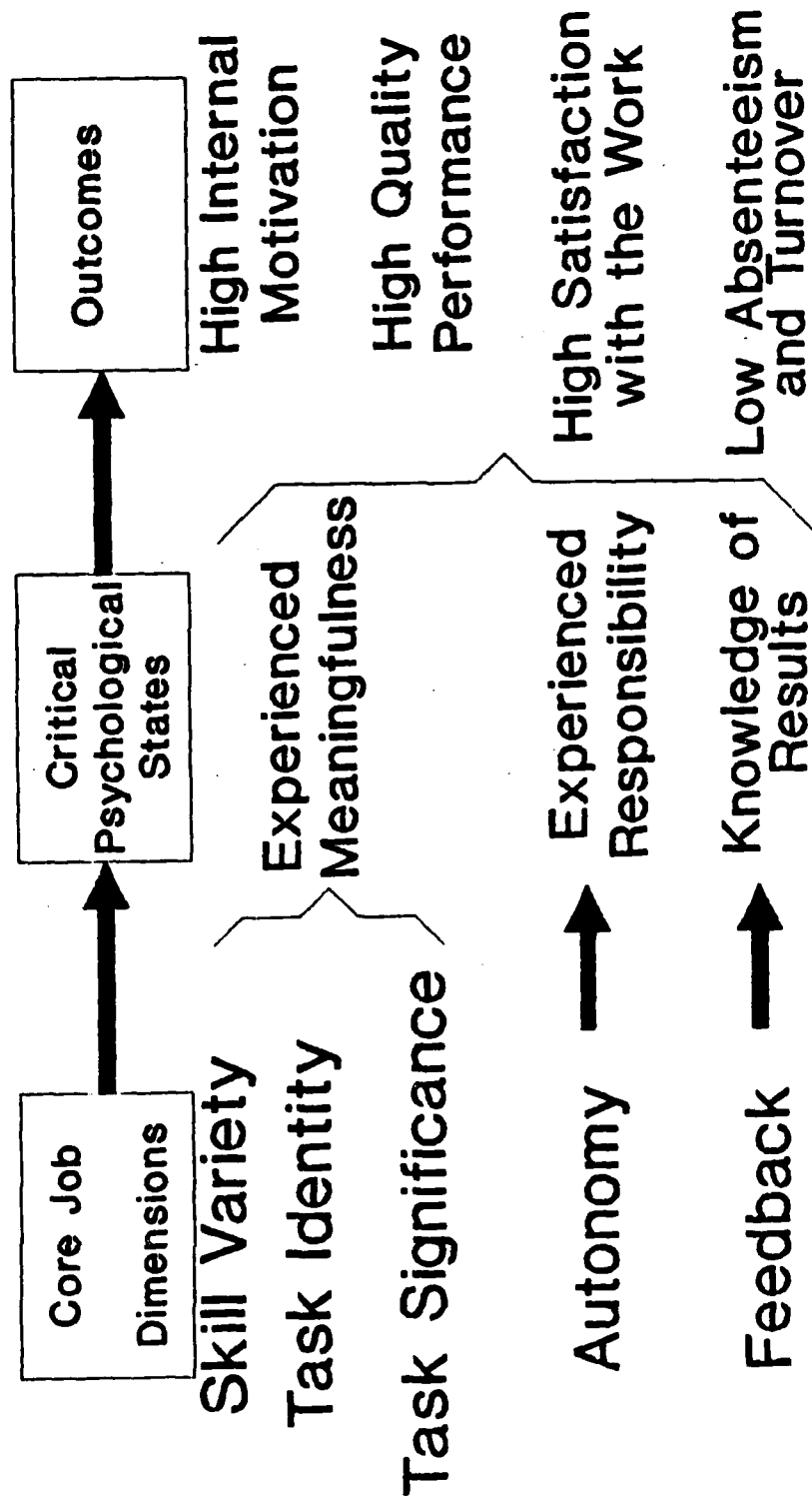
Figure 1

Source: Hackman & Oldham, "Work Redesign", 1980

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the amount of a core dimension a worker really has in his or her work, it is what he or she perceives which affects his or her reactions to the job.

Hackman and Oldham (1975) developed a measurement tool for operationalizing elements of the Job Characteristics Model called the Job Diagnostic Survey. This instrument was designed to be of use both in the diagnosis of jobs prior to the redesign and in the evaluation activities aimed at assessing the effects of the redesigned jobs on the people who perform them. This questionnaire not only provides measures of the five core dimensions, but also provides measures of critical psychological states, affective reactions to the job, and individual growth need strength.

Empirical Research

Because the intervention implemented in tandem with this study owed its conceptual heritage to the Job Characteristics Model, empirical research relating to the model was reviewed. The purpose of this review of the research literature on the Job Characteristics Model was to determine what documented outcomes are attributable to job designs adopting this framework.

Hackman and Lawler (1971) studied a group of 208 telephone company employees in a field test of Job Characteristics theory. The study found that when jobs were high on four core dimensions (variety, autonomy, task identity, and feedback) and the employee desired higher

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order need satisfaction, these individuals tended to display higher motivation, higher job satisfaction, less absenteeism, and to obtain higher quality of work ratings from their supervisors. Lawler, Hackman, and Kaufman (1973) also focused on telephone company employees. They increased the amount of variety and decision-making autonomy in an operator's job. However, no increase in work motivation, job involvement, or growth need satisfaction occurred. Instead, the changes had a negative effect on interpersonal relationships. Lawler et al. (1973) attribute this result to variety and autonomy scores remaining low even after the redesign. The authors maintain that because the changes made in the job failed to increase all four core dimensions, the data reported were consistent with the Hackman-Lawler (1971) theory, but were not a decisive test of it.

Hackman, Oldham, Janson, and Purdy (1975) implemented a job redesign intervention on a group of 98 keypunch operators. The purpose of this experiment was two-fold, to improve morale, productivity, and other indicators of employee well-being and to test the general effectiveness of a new strategy for job enrichment. According to the authors, the results of the intervention were dramatic. The experimental group showed an increase of 39.6% in productivity compared to the control group's increase of 8.1%. The experimental group showed a 24.1% decrease in absenteeism while the control showed a 29% increase. Also,

the experimental group's overall satisfaction score rose 16.5% compared to the control group increase of .5%.

Hackman and Oldham (1976) introduced and tested the actual Job Characteristics Model in a study that included 658 employees in 62 different jobs. The jobs sampled were highly heterogeneous, including blue collar, white collar, and professional positions. Both industrial and service organizations were represented in the sample, but all were business organizations. The results of the study provided generally strong support for the validity of the Job Characteristics Model. The psychological states generally correlate higher with the outcome measures than do the job dimensions. The summary Motivating Potential Score (MPS) relates more strongly to the outcomes than do any of its component job dimensions. Relationships involving absenteeism and performance are not as strong as expected and are generally smaller than relationships involving the measures of satisfaction and motivation.

Hackman, Pearce and Wolfe (1978) studied a number of clerical jobs undergoing technological changes. The technological changes introduced a naturally-occurring inadvertent job redesign. In general, employees on jobs that increased in motivating potential score gained in internal work motivation and growth satisfaction. Reverse effects were observed among employees whose jobs decreased in motivating potential score. However, employee growth

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needs themselves were not affected by the altered
motivational characteristics of the jobs.

Wall, Clegg, and Jackson (1978) conducted a job
redesign study involving 47 shop floor employees in the
production department of a medium-sized confectionery
factory in northern England. This study replicates the
findings of Hackman and Oldham (1976) both generally and in
detail. However, the authors conducted a path analysis
which demonstrated the Job Characteristics Model, as
currently formulated, is not fully consistent with either
the findings upon which it was developed or of this study.
Some of the relationships specified by the model were not
found to exist. However, the authors also state that the
model's general framework is still useful for job redesign
purposes.

A study by Evans, Kiggundu, and House (1979) reports
the results of a partial test and extension of the Job
Characteristics Model using 343 auto assembly plant
supervisors and managers. It also represented an effort to
reintroduce expectancy theory notions into job redesign
literature. The results provided partial support for the
Job Characteristics Model. Job characteristics relations
were low but still statistically significant. There was
weak support for the moderating effect of growth need
strength. The author stated that the correlations with

expectancy-type outcomes were encouraging given the exploratory nature of the research.

A longitudinal field experiment conducted by Orpen (1979) on 86 clerical employees indicated that job enrichment did produce substantial benefits. The results substantiated the hypothesis that those employees whose jobs were altered would be more satisfied with their jobs than those whose jobs remained unaltered. Also, employees in the altered jobs were more involved in their work and more highly motivated to perform well than those in the unaltered jobs. In contrast, the results did not indicate significant effects of enrichment in the areas of performance and productivity. Finally the results suggested that the rates of absenteeism and turnover decreased substantially following job enrichment.

Bhagat and Chassie (1980) examined changes in motivational properties of jobs as measured by the Job Characteristics Model through a quasi-experimental design. A manufacturing organization with about 100 employees underwent a planned change from a five day work week to a four-day work week. This was done to reduce costs and was introduced without regard for the motivational consequences of the change. Measures of core dimensions and outcome variables were collected before and after the change. Results showed that the group experiencing an increase in motivational properties of their jobs reported significantly

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higher general satisfaction, growth satisfaction, and internal work motivation. Also, although there was no effect on employee growth-need-strength, high growth-need-strength employees responded more sensitively and predictably to the changes in their job than did low growth-need-strength employees.

A longitudinal study by Griffin (1981) investigated the stability of individual perceptions of task characteristics and the stability of individual reactions to these perceptions over a three-month period. Data were collected from 342 employees of a non-unionized manufacturing plant. The results indicated that no significant correlations were found between task characteristics and productivity at either point in time. However, all task characteristics were significantly correlated with job satisfaction at both points in time. Further, the correlations between job satisfaction and measures of autonomy, feedback, and identity were significantly greater at the three-month point than during the first data collection. Overall, the data indicated that employee responses shaped by perceived task characteristics, in terms of productivity and satisfaction with supervision, were relatively stable. But job satisfaction responses prove more complex and more changeable over time.

In a critical review of the Job Characteristics Model, Roberts and Glick (1981) argued that there are substantial

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inconsistencies in the task design area across the theory,

operationalizations, analyses, and interpretations.

"In the initial development of the job characteristics
approach (Hackman & Lawler, 1971: Hackman & Oldham, 1975,
1976), there was some slippage between the conceptualization
of tasks and their assessments and some question about the
utility of a moderator variable in explaining task outcome
relations. After nearly a decade of research, this slippage
has expanded rather than contracted. In fact, additional
kinds of inconsistencies have been introduced. This
suggests that the research based on job characteristics
approach is still exploratory" (Roberts & Glick, 1981, p.
211).

This review also noted that theoretical statements of

the model are not entirely clear, and the relevant empirical

work fails to test the relations discussed by the

researchers. Roberts and Glick (1981) argue that future

task design research may benefit greatly from attention to

alternative theoretical perspectives that distinguish

between situational attributes of tasks and incumbent

cognitions about those attributes. According to these

authors, both types of task-relevant constructs are needed

for a truly useful theory of task design.

In a literature review dealing with empirical

relationships between perceived task scope and employee

performance, Griffin, Welsh and Moorehead (1981) state that

three major issues can be derived from the review. First, a

more precise formulation of performance interrelationships

is needed. Second, causal priorities among variables need

both theoretical and empirical clarification. Finally,

organizational context variables must be integrated with the

study of task design variables if meaningful proportions of performance variance are to be explained. With few exceptions, the studies are characterized by performance measures that are only moderately valid and meaningful at best and potentially invalid and meaningless at worse. Also, individual difference variables have not been shown to be a major force in task design-performance relationships.

A study by Caldwell and O'Rielly (1982) attempted to determine the extent to which perceptions of task characteristics reflect variations in job satisfaction. This study included a laboratory experiment involving 77 MBA students and a field study focusing on 88 retail representatives. Aspects of job satisfaction were found to be strongly related to perceived task characteristics. The study found that, despite holding the same job, workers who feel more satisfied with the job describe the task in more positive and socially desirable terms. This distinction may lead to differences in job satisfaction measurement.

Griffeth (1985) examined the effects of employee participation on job redesign. This longitudinal field experiment studied 57 part-time desk receptionists. The results of this field experiment indicated that job enrichment did positively affect the desk receptionists' job on the dimensions of skill variety, task significance, feedback from the job, and feedback from agents, as well as the overall Motivating Potential Score (MPS). In addition,

growth satisfaction and overall general satisfaction were
significantly improved as a result of changes in the job.
Finally, voluntary turnover was also significantly affected
by changes in the job context. Because of the degree of
control that was provided in this field setting, the data
provided clear causal support for the Job Characteristics
model. The effects of the participation factor were
generally less favorable. Participation only affected the
dimensions of turnover and general satisfaction. Fried and
Ferris (1987) assessed the validity of the Job
Characteristics Model by conducting a comprehensive review
of nearly 200 relevant studies on the model as well as by
applying meta-analytic procedures to a large portion of the
data. The evidence indicated that the correlational
relations between job characteristics and psychological
outcomes were stronger and more consistent than the
relationship between job characteristics and behavioral
outcomes. The results supported the multi-dimensionality of
job characteristics, but did not determine the exact number
of dimensions. The results also supported the mediating
role of the psychological states between job characteristics
and personal outcomes. Meta-analytic results showed most of
the cross-study variance was due to statistical artifacts.
True variance across studies was found for the job
characteristics-performance relationship, and subsequent

analyses indicated that growth need strength moderates this
relationship.

Summary of Literature Review

The Job Characteristics Model appears to be one of the
most widely researched frameworks in the field of
Organizational Development. The preceding review sought to
discuss only a representative sample of Job Characteristics
Model research and does not attempt to duplicate more
comprehensive reviews (Fried & Ferris, 1987). The evidence
indicates that most researchers have found support for the
validity of the Job Characteristics Model. The degree of
this support ranges from weak to very strong. However, as
more research is being done, more deficiencies in the theory
are also coming to light.

Most of the literature to date relating job redesign to
increased satisfaction consists of laboratory experiments or
correlational studies. Neither of these kinds of studies
can be used to support the claim that changes in job content
increase job satisfaction. Also, most of the studies are
one-shot designs in which internal validity is potentially
contaminated and external validity is minimal (Griffin,
1981, p. 99). More intervention-based studies, such as the
present study, are necessary to demonstrate the direct
causal impact of job changes on job satisfaction. Such
studies, performed in actual work environments over an

extended period of time, may serve to verify the causal impact of job redesign efforts on job satisfaction.

III. Method

Chapter Overview

This chapter describes the methodology used to accomplish the research objectives and evaluate the research hypotheses stated in Chapter I. This section includes a chapter describing the samples from which the data were collected, the survey instrument used to collect the data, and the statistical process used to analyze the data. It also outlines the process of consultation and the steps from data analysis to intervention design.

Samples

The treatment group consisted of company grade officers in the Program Control office at a U.S. Air Force Base in the southeastern U.S. At the outset of the study, the target group consisted of 23 officers. These officers ranged in rank from Second Lieutenant to Captain. The average age of the target group was approximately 27 years and the average tenure was about two years. All members of the target group were college graduates, many working toward or holding masters' degrees. The target group consisted of Acquisition Managers and Cost Analysts in a matrixed organizational structure.

For comparison purposes, data were collected from two samples of company grade officers with similar duties in similar organizations. The matrixed comparison group was

located in the Program Control office of a midwestern U.S. Air Force Base. At the time of this study, this group consisted of 77 officers. This group was similar to the target group in age, tenure, education level, and duty titles.

A second comparison group consisted of company grade officers in the Research, Development and Acquisition Division of a southeastern Air Force Base. This non-matrixed comparison group of Program Managers provided a comparison group from an organization lacking a matrix design. At the outset of this study, this group consisted of 148 officers. This group was also similar to the target group in age, tenure, and education level. However, this group consisted solely of Acquisition Managers.

Intervention Process

Project setting. The organization under examination employs 327 people, 23 of which are company grade officers representing the target group. This organization provides accounting and finance and budget services to program offices whose responsibility it is to develop and acquire new weapons systems or update existing weapons systems. Each major weapon system or group of smaller systems is considered a separate program. Personnel from the target group are matrixed into the programs to handle accounting, finance, and budget aspects of the acquisition process.

<u>In-house problem diagnosis</u>. The Commander of this
organization held feedback sessions with the subjects of
this study approximately quarterly. Feedback sessions held
with the Commander during the first half of 1987 indicated
morale problems among the Company Grade officers.
Specifically, the officers voiced concerns relating to job
challenge and feelings that their technical backgrounds
were being wasted in clerical work. These discussions
prompted the development of an open-ended survey distributed
in-house to determine the specific factors giving rise to
the morale problems. A content analysis (Appendix A) was
performed on the open-ended survey to try to determine
primary concerns. Although only a small number of officers
answered the questionnaire (i.e., n=12), certain issues
surfaced. First, two-thirds of the respondents stated that
they were not happy in their present positions. The same
percentage stated that they did not feel involved and
important to the office and that the work was not
challenging. When asked what they liked least about where
they work and what they do, the most frequent responses
referenced lack of challenge, repetitiveness of the work,
amount of busy work, and inability to see results. Finally,
when asked what issues should be addressed by the
organization, the responses given most frequently dealt with
the officers' inability to use their knowledge and

expertise, lack of opportunity to learn other aspects of the job, lack of performance feedback, and lack of challenge.

Once this data were gathered and reviewed, the organization Commander engaged an external consultant to work with the organization toward further defining the problem and constructing remedial interventions.

Diagnostic interviews. Interviews were conducted on-site with some of the Company Grade Officers comprising the target group. The information gathered during these interviews was used to gauge the nature and extent of the morale problem in the organization and to design a survey questionnaire for subsequent administration to organization employees. Of the 23 officers assigned to Program Control in the target group, 16 were interviewed. A copy of the interview protocol is provided in Appendix B. The following is a list of concerns expressed by respondents during the interviews:

1. Lack of opportunity to see the results of one's work.

2. Inability to see the importance of one's work.

3. Lack of opportunity to see where work fits into overall process.

4. Lack of challenge.

5. Lack of variety in work.

6. No autonomy or decision-making authority.

7. Wasting technical background on non-technical jobs.

8. Lack of guidance on how to perform jobs.

9. Lack of responsibility normally associated with officer position.

10. Lack of performance feedback.

11. Problems associated with matrix organization structure.

12. Perception of Program Control's role in the matrix organization.

13. Specialization of duties.

14. How Program Control personnel and Program Management personnel view one another.

15. Lack of personal growth (job knowledge).

16. Lack of both formal and in-house training.

The consultant's on-site visit was also used to learn about the organization and its matrix structure. Discussions with supervisory personnel were conducted to determine their perceptions of the health of the organization and the extent and nature of the morale problems plaguing company grade officers.

During this visit, meetings were held with the Comptroller and with supervisory personnel. These meetings were helpful in determining the amount and type of support this project would receive from management. Permission was granted from the Comptroller to begin work on a survey questionnaire. The Comptroller also expressed support for the design and proposal of an intervention following analysis of the survey data.

Diagnostic survey. A survey questionnaire was assembled for the purpose of identifying task and role .

factors producing the group morale problems. The
questionnaire contained published scales in the management
literature and several ad hoc scales tailored to specific
site factors. A detailed description of the questionnaire
follows:

Background. The first item asked the respondent's
age using ordinal scales ranging from less than 20 years (1)
to more than 60 years (8). Item 2 asked the rank of the
respondent. This scale ranged from Second Lieutenant (1) to
Captain (6). It also offered a response category of Other
(7) for respondents not fitting other alternatives.

The job duties of the respondent were the subject of an
item. Respondents provided their Air Force Specialty Codes
(AFSC). The survey was directed at the AFSC's 27XX (1) and
67XX (2). A third option, other was included in the event
the questionnaire was answered by someone with a different
AFSC.

Education was measured by item 4. Since all intended
respondents were to be officers, it was assumed that the
lowest level of education was a bachelors degree (1). The
highest options were doctoral degree (4) and other (5).

The next item dealt with the respondent's primary area
of study. The response choices included engineering,
business, technical (other than engineering), arts, and
other.

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Item 7 dealt with the amount of time the respondent held his/her present position. This item consisted of unequal intervals beginning with _less than one month_ (1) and concluding with _more than 36 months_ (7).

The final background item asked the respondent how long he/she had been in his/her present AFSC. The scale used in this item was identical to the scale used with item 7.

Job satisfaction. Job satisfaction was measured with 20 items from the Minnesota Satisfaction Questionnaire - short form (MSQ, Weiss, Dawis, England & Lofquist, 1967). There were five responses for each of the items ranging from _very dissatisfied_ (1) to _very satisfied_ (5). Intrinsic satisfaction was measured by a sub-scale of 12 items, while extrinsic satisfaction was measured by a sub-scale of six items. Sample items referenced, "the chance to work alone on the job", "the chance to tell people what to do", and "the freedom to use my own judgement". Weiss et al. (1967) reported median reliability coefficients of .86 for intrinsic satisfaction and .80 for extrinsic satisfaction.

Job characteristics. Hackman and Oldham's (1975) Job Diagnostic Survey (JDS) was used to measure the five core job dimensions of Hackman and Oldham's (1976) Job Characteristics Model. In this instrument, the core dimension feedback was broken into two sub-dimensions, _feedback from the job_ and _feedback from agents_. "Feedback from the job" was defined by Hackman and Oldham (1975) as

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the degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance. "Feedback from agents" was defined as the degree to which the employee receives clear information about his or her performance from supervisors or from co-workers. The JDS also measured dealing with others. This dimension is described as the degree to which the job requires an employee to work closely with other people in carrying out the work activities (Hackman & Oldham, 1975). According to a study by Aldag, Barr, and Brief (1981), internal consistency reliability of the JDS has been examined in ten studies. A mean internal consistency reliability of .68 across these studies for the various core-dimension scales has been reported.

Job information. This section of the survey questionnaire consisted of seven items employing a response scale ranging from (1) low to (7) high. The respondent was asked to describe their job as objectively as possible using this scale. Each question dealt with one of the core dimensions from the Job Characteristics Model (Hackman & Oldham, 1976).

Job description. This 14 item section of the survey used a seven-point scale ranging from very inaccurate (1) to very accurate (7). The object of this section was to

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ask the respondents about the core dimensions using a different questionnaire format.

Several Scales in the survey questionnaire consisted of ad hoc measures derived from issues raised during the interviews between the external consultant and the target group members.

Challenge. Three items were designed to measure the amount of challenge in the job as perceived by the employee. The scale used for these items ranged from strongly disagree (1) to strongly agree (7). The three items measuring challenge were:

"The job itself is challenging and interesting."

"Program management work is more interesting and challenging than program control work."

"The job itself requires very little use of my talents or skills."

Training and education. Three items were designed to measure the need for a technical background in performing the job and the amount of training actually provided to the employee. These items employed an agree-disagree response scale. The items were:

"A technical background is necessary to do my job."

"A technical background is helpful in doing my job."

"I have received the proper amount of training to do my job."

The matrix organization. Four items in the survey were designed to measure the effectiveness of the matrix organization, the perceived role of program control, and the

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extent of knowledge on the part of the employee of how a
matrix organization works. The scale used was an agree-
disagree scale. The items were:

> "The Program Control Division has total control over the placement of its personnel."

> "The matrix organization is a good way to manage personnel."

> "The Program Control Division is aware of how well I do my job."

> "I do not know much about how a matrix organization operates."

Open-ended comments. The final portion of the survey
was set aside for the respondent to write open-ended
comments regarding what changes (if any) he/she felt should
be made in the organization. Respondents were also asked to
include any changes they would like to see made in their
particular job situation.

Variables

The individual questions on the survey questionnaire
were categorized and combined to determine the proper scales
to use for the data analysis. The following is a complete
description of those scales:

The five core dimensions. The scales of Task Variety,
Task Identity, Task Significance, Autonomy, Feedback (both
from agents and the job), were the five core dimensions
measured by the portion of the questionnaire derived from
the Job Diagnostic Survey (Hackman & Oldham, 1975). Each

scale was attained by the summing of three survey items. Each class of variables was measured in two different sections of the JDS and by items written in two different formats. This method decreases the degree to which substantive content and measurement technique are confounded in the instrument (Hackman & Oldham, 1975). The detailed descriptions of each of the dimensions is given in the literature review.

Challenge. The scale for determining the amount of challenge in a job, as perceived by the employee, was obtained by combining the results of two of the survey items. This scale was invented because this issue arose during both the open-ended survey conducted by the target group and the interviews between the target group employees and the external consultant.

Training. The requirement for a technical background to do the job was the issue of concern for this scale. During the course of the interviews and the open-ended survey, many employees expressed concern that their technical backgrounds were being wasted in their present position. This scale was created to determine the extent of that concern and was measured by combining the results of two survey items.

Matrix. Each of the four questions in this section of the questionnaire was designed to measure a different aspect of the affect of the matrix organization. The first

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question dealt with the issue of the amount of control the Program Control Division has over the placement of its personnel. The next question dealt with the way the employees felt about the matrix organization as a management tool. The third question addressed the issue of Program Control's awareness of the performance of its matrixed employees. The final question was concerned with the amount of knowledge an employee has about the matrix organization concept. The questionnaire was pretested on twenty-five students and faculty of the School of Systems and Logistics, Air Force Institute of Technology, Wright-Patterson AFB, OH. Several minor revisions were made concerning the content and format of the questionnaire as a result of this pretest. The questionnaire was then submitted to the Personnel Survey Branch, AFMPC, for approval. The survey questionnaire sought anonymous responses. The complete survey questionnaire is reproduced in Appendix C.

Address labels were made from listings provided by the participating organizations. The eight page survey questionnaire, a cover letter introducing the survey, a Privacy Act Statement, and a pre-addressed return envelope were mailed to each person. The total number of survey questionnaires mailed was 243. Of the 243 surveys distributed, 128 were returned for an overall response rate of 53%. From the target group, 16 of the 23 questionnaires were returned for a response rate of 70%. Of the 72

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questionnaires distributed to the non-matrixed comparison group, 35 were returned for a response rate of 49%. Finally, of the 148 questionnaires distributed to the matrixed comparison group, 77 were returned for a response rate of 52%.

Data analysis. The results of the survey were used for diagnostic purposes. The data appeared to argue for a job redesign intervention. Mean-difference tests comparing the target and the comparison groups suggested deficiencies in certain areas of the job. This information was used by the job redesign team to suggest the precise areas of greatest need for change. The results of this data analysis are presented in detail in Chapter 4.

Feedback to the organization. After analyzing the data, the external consultant revisited the target group's organization to brief the survey results and discuss future plans. The briefing was presented to the Commander, Company Grade Officers (the target group), and to the supervisors of the Company Grade Officers. During the course of these briefings, several issues were stressed. First, when comparing the target group with the non-matrixed comparison group, the scores for the dimensions of task variety, task significance, autonomy, feedback from the job, challenge, and the need for a technical background were all substantially lower for the target group. The score for the dimension of feedback from agents was substantially higher.

This may be a consequence of the quarterly feedback sessions held by the Commander. In comparing the target group with the similar comparison group (i.e. program managers in a matrixed organization), the scores for the dimensions of task identity, feedback from the job, and the need for a technical background were all lower for the target group. Once again, feedback from agents was considerably higher for the target group. Finally, in the comparison of duties, task identity for the Budget Analysts was much higher than for the Program Managers. The briefing was well received by all groups and discussion began on what courses of action might be taken.

Development of job redesign team. It was agreed by all parties involved that the next course of action would be to ask for a group of volunteers from the target group to develop a formal proposal for the actual redesign of the jobs. During the briefing with the target group, this idea was discussed and six volunteers presented themselves. The group represented both job areas (i.e. cost analysis and program control), a number of different program offices, and a wide range of job experience. Three meetings were scheduled with this group prior to the external consultant's departure. During these meetings the external consultant presented definitions for each of the dimensions of Hackman and Oldham's (1976) Job Characteristics Model. The group was told that the formal proposal would be presented to the

Commander, who had final authority to approve all, part, or none of the recommendations of the group. The group was left to discuss their own ideas and solutions. The Job Redesign Group decided to meet twice a week and set mid August 1988 as a target date for completion of the proposal. At the end of July 1988, the group met with the entire target group to explain what had been done to that point and to solicit final recommendations from the group.

IV. Results

Chapter Overview

This chapter presents the results of the statistical analyses of the survey data which was used to diagnose areas of specific concern to the target group members. The analysis involved a one-way analysis of variance comparing the target group mean to the means for matrixed and non-matrixed comparison groups. Then, using t-tests for independent groups, the means for each criterion group were tested relative to normative statistics published in Oldham, Hackman, and Stepina's "Norms for the Job Diagnostic Survey" (1978, p. 34). An analysis of the open-ended "Comments" follows. The last portion of the chapter summarizes the findings.

Target Group vs. Comparison Groups

A one-way analysis of variance (ANOVA) was performed to determine if the target group was significantly different from either of the comparison groups. The scales used as dependent variables consisted of the core dimensions of task variety, task identity, task significance, autonomy, feedback from agents, feedback from the job, and ad hoc measures of challenge, training, and attitudes toward matrix organizations. These scales are described in detail in Chapter III.

The results of these analyses produced one significant difference between the groups. A significant F-value on the measure of "training", which measured the need for a technical background on the job, was produced by the ANOVA. Table 2 is the ANOVA summary and Table 3 shows the results of a Student-Newman-Keuls post-hoc test on this variable.

Target Group vs. Normative Data

The ANOVA comparing the target groups to the matrixed and non-matrixed comparison groups isolated only one significant difference between the three groups. The target group perceived significantly less value for technical training in their jobs. However, the ANOVAs may provide a somewhat distorted portrait of the situation because problems with this job may not be isolated to one organization. These problems may be common to the entire occupational job family. Consequently, the next step of the analysis involved comparing core dimension scores for the target group to the means for a normative group. This analysis was conducted using t-tests between independent groups. Because the jobs performed by the target group and comparison groups closely resembled the occupational category "Professional or Technical" published in "Norms for the Job Diagnostic Survey" (Oldham, Hackman, & Stepina, 1978, p. 34), the normative data from this job family was employed as reference data. Table 4 summarizes these analyses. Significant differences between the target group

Table 2

Summary ANOVA Table for "Training" Variable

Source	D.F.	Sum of Squares	Mean Squares	F
Between Groups	2	226.55	113.28	12.11*
Within Groups	125	1169.69	9.36	
Total	127	1396.24		

* $p < .001$

Table 3

Results of Student-Newman-Keuls Test
Comparing Groups on Training

		Student-Newman-Keuls Test	
Group	Group Mean	Group 1	Group 3
1. Target	5.7		
2. Non-matrixed	9.7	*	*
3. Matrixed	7.1		

$p < .05$

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Table 4

Results of T-Tests Comparing Target Group to Normative Statistics from Oldham et al. (1978)

	Target Group		Normative Data		
	M	S D	M	S D	t
Task Variety	4.0	2.2	5.4	1.0	2.50 *
Task Identity	4.4	1.8	5.1	1.2	1.46
Task Significance	4.1	1.9	5.6	1.0	2.45 *
Autonomy	4.3	2.1	5.4	1.0	2.08 *
Feedback from Job	3.7	1.5	5.1	1.1	3.41 **
Feedback from Agent	4.1	1.3	4.2	1.4	.28

Note. Target group n = 16; norm group n = 72.
* p < .05
** p < .01

and the normative group were observed on task variety, task significance, and autonomy at the .05 level of significance. A significant difference on feedback from the job at the .01 level was also observed. In all instances, scores for target group members on these variables were significantly lower than for the normative group.

Matrixed Comparison Group vs. Normative Data

Using t-tests for independent groups, the means for the matrixed comparison group were compared to the normative group. The results of this analysis were similar to those for the target group. Significant differences at the .01 level were shown for the dimensions of variety, task significance, autonomy, and feedback from the job. Significant differences were not present for the dimensions of task identity and feedback from agents. These results are summarized in Table 5. As before, the differences between groups represent consistently lower scores for the comparison group across all measures.

Non-Matrixed Comparison Group vs. Normative Data

Using the same statistical process employed on the data from the matrixed comparison group, statistics for the non-matrixed comparison group were compared to the normative data. In this analysis, the dimensions of task variety, task identity, and autonomy were discovered to be significantly different at the .05 level. Task significance

Table 5

Results of T-Tests Comparing the Matrixed
Group to Normative Statistics from Oldham et al (1978).

	Comparison Group (Matrixed)		Normative Data		
	$\underline{M}$	$\underline{S\ D}$	$\underline{M}$	$\underline{S\ D}$	$\underline{t}$
Task Variety	4.2	1.9	5.4	1.0	4.80 **
Task Identity	4.8	1.7	5.1	1.2	1.25
Task Significance	4.2	1.9	5.6	1.0	5.83 **
Autonomy	4.5	1.6	5.4	1.0	4.09 **
Feedback from Job	4.1	1.7	5.1	1.1	4.35 **
Feedback from Agent	3.9	1.7	4.2	1.4	.86

Note. Target group n - 77; normative group n - 72.
* $p < .05$
** $p < .01$

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and feedback from the job were found to be significantly different at the .01 level. Feedback from agents was the only dimension not found to be significantly different. Table 6 summarizes the results. The non-matrixed comparison group obtained consistently lower scores on the job characteristics measures.

The questionnaire, in addition to providing quantitative data, afforded the respondent the opportunity to contribute open-ended comments.

Comments

The "Comments" section of the survey produced a considerable volume of open-ended comments. The following is a representative sample of those comments.

> "Biggest problem - wasted potential of people - especially Jr. Officers. Engineers should not be placed in Program Control positions."

> "I've been in this job for three years. It has been at least two years since I have learned anything new, or felt like I was growing."

> "I don't like the work we do. I love to work, but not the worthless tasks we do."

> "I'm doing the same job as Capt. as I was doing as a 21t. Should be some increase in responsibility (i.e. begin supervising someone."

> "The job can be challenging if you have a task to do. So far, I've been mostly unproductive. This does not allow me to see any good traits in my job."

> "My biggest problem is that my Electrical Engineering degree is being utterly wasted in this job. Any high school graduate can perform functions like preparing schedules and briefing charts."

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Table 6

Results of T-Tests Comparing the Non-Matrixed Group to
Normative Statistics from Oldham et al (1978)

	Comparison Group (Non-Matrixed)		Normative Data		
	M	SD	M	SD	t
Task Variety	4.7	1.6	5.4	1.0	2.33 *
Task Identity	4.3	1.7	5.1	1.2	2.50 *
Task Significance	4.6	1.8	5.6	1.0	3.13 **
Autonomy	4.8	1.3	5.4	1.0	2.40 *
Feedback from Job	4.2	1.4	5.1	1.1	3.33 **
Feedback from Agent	3.7	1.6	4.2	1.4	1.56

Note. Target group n - 35; normative group n - 72.

* $p < .05$
** $p < .01$

"Training is not structured to the knowledge or
requirements of the incoming personnel. Training
should be approached from the comprehension level
of the person being trained (background,
experience, education, etc.)."

Summary

The data collected from the respondents was used as a
diagnostic device to help gain some understanding of the
specific concerns contributing to the morale problem within
the target group. The data were also examined to determine
whether observed problems were specific to one organization
or common across the entire job family (i.e., AFSC).

The data analysis began with a comparison between
target group and both comparison groups using a one-way
analysis of variance to determine if any group responses
were significantly different from another group's responses
in terms of the measures imbedded within the survey. This
analysis revealed only one dimension containing a
significant difference. Specifically, the non-matrixed
comparison group's mean was significantly higher than both
the target group's and the matrixed comparison group's mean
with respect to the training dimension.

The paucity of differences produced by the analysis
might prove be misleading if the problem itself existed
throughout the entire job family rather than being isolated
to the target organization only. In such an instance, a
lack of significant differences between target and
comparison groups does not necessarily signify

psychologically fulfilling jobs. Consequently, the next
step in the analysis process involved comparing each group
mean to normative data compiled for the Job Diagnostic
Survey by Oldham et al. (1978). The analysis was conducted
using t-tests between independent groups. Comparison of the
target group's data to the normative data showed that the
dimensions of task variety, task significance, autonomy, and
feedback from the job were significantly lower for the
target group. There were no significant differences in the
areas of task identity and feedback from agents.

Comparison of the matrixed comparison group with the
normative data produced significantly lower scores for the
comparison group in the areas of task variety, task
significance, autonomy, and feedback from the job. There
were no significant differences in the areas of task
identity and feedback from agents.

Comparing the normative data with the data from the
non-matrixed comparison group also produced significantly
lower comparison group means in the areas of task variety,
task significance, autonomy, and feedback from the job.
However, the non-matrixed group also had a significantly
lower mean on the dimension of task identity. Feedback from
agents was the only dimension where no significant
difference was found.

Table 7 is a summary of the findings described above.

Table 7

Criterion Group vs Normative Data

	Non-Matrixed	Target	Matrixed
Task Variety	*	*	**
Task Identity	*		
Task Significance	**	*	**
Autonomy	*	*	**
Feedback from the Job	**	**	**
Feedback from Agents			

*   p < .05
**   p <. 01

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V. Discussion

This research has attempted to determine the origins of low levels of job satisfaction and morale among company grade officers in an Air Force Program Control Office. Diagnostic instruments and personal interviews were employed to profile the current working environment and identify areas needing attention. The data from this research may now be used to suggest courses of action designed to remedy the morale problems in the target group.

Analysis of Findings

The results of this research suggest that a job redesign intervention may be a reasonable response to morale problems within the target group. Specifically, the scores for Task Variety, Task Significance, Autonomy, and Feedback from the Job were significantly lower than normative data from similar occupational groups. These job properties will require special attention during the development of the job redesign. The research also indicates that problems with Program Control jobs are not limited to the target group, but also exist in similar Air Force organizations. Based on the remarks provided in an open-ended survey, interviews with employees, and comments on the survey questionnaire, the dimensions of Job Challenge and Need for a Technical Background were also areas that may be addressed by the Job Redesign Team.

Using the Job Characteristics Model (Hackman & Oldham, 1976) as a guide, the data may be used to assist the Job Redesign Team in improving the present situation in the Program Control office. The model predicts that redesigning the job in such a way as to increase the five core dimensions will create a greater experience of meaning, responsibility, and knowledge of results. These increases are predicted to result in greater job satisfaction, higher internal work motivation, and better work performance.

Recommendations

Although the diagnostic phase of this research is complete, it may prove beneficial to engage an external consultant to guide later steps such as design of the intervention, implementation, and follow-up evaluative research. Successful job redesign is an evolutionary process. Without expert guidance, it is difficult to initiate lasting organizational change. The intervention, once designed and implemented, will normally require close monitoring and fine tuning.

Job Redesign Team. Hackman and Oldham (1980) discuss the advantages and disadvantages of using a participative process to redesign work. The possible advantages include a higher quality of diagnostic data provided by the employees, highly constructive suggestions made by employees, an increased sense of ownership and heightened commitment to

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the redesign project on the part of the employees, and finally, an increased chance that lessons learned from the change activities can be used in future work redesign projects. Some of the possible disadvantages include the fact that the employees may have a limited perspective on the work system, thereby being unable to be innovative and creative with respect to job changes. Also, involving the employees in the redesign process can be a time consuming process. The possibility exists for disruptions to unit productivity. Furthermore, employees may have little desire for such activities and may question their being required to take on chores that are typically management's responsibility.

Despite the risks, it was decided by all parties that a participative approach was appropriate in this situation. One of the main considerations influencing this decision was the limited exposure of the external consultant to the organization's production systems. Also, both management and employees felt the employees were in the best position to determine what changes would be necessary to increase job satisfaction. An important element of the job redesign process should be involvement of the entire target group. The team should meet with all affected employees prior to completion of its tasking in order to convey to all impacted parties what has been done, its impact and to consider any final employee suggestions. By keeping target group mebers

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informed of the Job Redesign Team's activities, the organization ensures that all members feel the same sense of ownership and accomplishment from the redesign process.

Finally, the Job Redesign Team should use all available information to help guide their progress. This includes the open-ended survey, the interview results, the survey questionnaire and comments expressed by the employees themselves.

An external consultant should work with the Job Redesign team until the team has completed the written intervention proposal and it is presented to management for consideration. The external consultant should then work with management to determine a specific course of action with regard to the proposal. Proper implementation of the intervention will be critical to its success. Management and employees must work together to ensure smooth and efficient implementation. Communication between management and employees will increase the liklihood of a smooth implementation. At some point after the job redesign is in effect and the employees have adjusted to it (e.g., 6 - 12 months), a follow-up survey, using the same instrumentation employed in the diagnostic phase, is recommended. The data from the follow-up survey may be compared to the first survey results to determine if any significant gains in employee score have been realized. If not, modification of

the intervention or selection of an alternative course of action may need to be considered.

Management support. A high degree of management support of this project is crucial to its success. Management must continue to support this effort as they have to this point. Management support my be shown by expressing keen interest in the project's success, by seriously considering any proposal presented by the Job Redesign Team, and by providing human and material resources to increase the chances of project success. Also, while management input is highly desirable, management personnel should scrupulously avoid the appearance of attempting to control or "oversee" the job redesign effort. The Job Redesign Team also should be assured that the final proposal will be given full consideration. Any changes to the proposal should be fully explained.

The end product of the Job Redesign Team may not only benefit this organization, but similar organizations as well. This research has indicated that the issues faced by the target group are a function of the job itself and not limited to one Program Control office. The work done by the Job Redesign Team may benefit Program Control offices throughout the Air Force.

Limitations

One limitation of this research was the exploratory nature of some of the measures in the survey questionnaire.

Although a major portion of the questionnaire was derived from reputable instruments such as the Job Diagnostic Survey (Hackman & Oldham, 1975) and the Minnesota Satisfaction Questionnaire (Wiess, Dawis, England, & Lofquist, 1967), several ad hoc measures were developed as a response to specific issues raised during interviews and open-ended questioning. As a result, their was no prior validation of those measures.

Also, as a result of the length of time this project may encompass and the normal duty rotation of military personnel, continuity problems with this study may arise. Many of the people involved in the data collection during the diagnostic phase may not be available to give inputs during the evaluation phase.

Recommendation for Continued Research

This process has only begun. The research effort must continue from this point through design and implementation of the intervention, and ideally to the follow-up data collection and evaluation. Improvements in the present situation may be seen without this project ever reaching the evaluation phase. However, the organization will not have learned anything from the experience and the improvements may be short-lived.

Very little literature dealing with the Job Characteristics Model (Hackman & Oldham, 1976) actually involves a situation where the job was redesigned. In a

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study where redesign actually took place, Christopher Orpen (1979) conducted a comprehensive study in phases very similar to this research. Phase 1 consisted of data collection from the subjects (pre-test). In Phase 2, two groups were created, one whose job was altered and one whose job remained the same. Phase 3 consisted of a six month period during which the subjects in the two groups performed their respective jobs. In Phase 4, data was again collected from the subjects (post-test). The results from this field experiment indicated that job redesign, guided by the Job Chracteristics Model (Hackman & Oldham, 1976), is capable of producing substantial benefits for the employee and the organization.

The opportunity exists for this study to add to the present body of knowledge on job redesign. However, if anything is to be learned from this project and if it is to become useful to similar organizations, the study must continue through to the evaluation phase. If job redesign as a field of study is to mature, there must be movement toward research programs rather than isolated studies, and there must be professional and organizational support for the integration of research efforts.

Appendix A: <u>Content</u> <u>Analysis</u> <u>of</u> <u>Open-Ended</u> <u>Survey</u>

The following is a content analysis of a survey
conducted at a southeastern AFB in July 1987. Although it
is a small sample, the results can be used to indicate that
a problem exists within the area of the Comptroller
Division. The survey consisted of open-ended questions.
This required me to break the answers into general
catagories.

Section <u>1:</u> <u>Demographics</u>

1.   What kind of office are you in?

A. Single program SPO: ******** (8)
B. Multiple program SPO: ****   (4)
C. AC "Staff":   (0)

2.   What is your rank?

A. 2LT   **   (2)
B. 1LT   *******   (7)
C. Capt. ***   (3)

3.   What type of (highest) degree do you have?

A. Associate   (0)
B. Bachelors   ****** (6)
C. Masters   ****** (6)
D. PhD   (0)

4.   What kind of degrees (all that apply)?

A. Technical   ******* (7)
B. Business   ******* (7)
C. Arts   *   (1)
D. Other   (0)

5.   Have you been assigned to bases other than the
present one?

A. Yes   *****   (5)
B. No   ******* (7)

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6. Have you had other jobs here at this base (outside the current 2-letter)?

A. Yes ***   (3)
B. No   ********   (9)

Section 2: Attitudes

7. Are you happy in your current job?

A. Yes ****   (4)
B. No   *******   (8)

8. Do you feel good about the people you work with/for?

A. Yes   ******** (8)
B. No   *   (1)
C. With Yes/For No ***   (3)
D. With No/For Yes   (0)

9. Do you feel involved and important to the office and its mission?

A. Yes   ****   (4)
B. No   ******* (7)
C. Yes and No *   (1)

10. Do you think your boss listens to your recommendations?

A. Yes ********   (8)
B. No   ****   (4)

11. Is your work challenging?

A. Yes   ***   (4)
B. No   ******* (8)
C. Yes and No *   (1)

12. What three things do you like best about where you work and what you do on a daily basis?

Good people   ******* (7)
Different/challenging problems   ***   (3)
Important SPO   **   (2)
Good Supervisor   **   (2)
Independence   **   (2)
Respect from Contractors   **   (2)
Comraderie/Spirit   *   (1)
Feeling of Contributing/appreciated *   (1)

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Tdy/Travel                               *        (1)
Task variety                             *        (1)
Interface with SPO directorates          *        (1)
Lack of TDY                              *        (1)
Work with computer                       *        (1)
Responsiveness                           *        (1)
Expert in field                          *        (1)
Good Equipment                           *        (1)
Central view of Acquisition Process      *        (1)
Lunch                                    *        (1)
```

13. What three things do you like least about where you work and what you do on a daily basis?

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No challenge                   *****    (5)
Busy work                      ***      (3)
Repetitiveness                 ***      (3)
Don't see results              ***      (3)
No decision authority          **       (2)
Supervisors                    **       (2)
Lack of interaction            **       (2)
Work overload                  **       (2)
Too many staff meetings        *        (1)
Bureaucracy                    *        (1)
Boss not supported             *        (1)
Crisis management              *        (1)
Officer appearance             *        (1)
Lack of recognition            *        (1)
Lack of child care             *        (1)
Weather                        *        (1)
```

Section 3: Feedback and Supervision

14. Do you get to see the results of your work?

```
A. Yes          ********    (8)
B. No           **          (2)
C. Yes and No   **          (2)
```

15. Do you receive performance feedback other than required ratings?

```
A. Yes          ********    (8)
B. No           **          (2)
C. Yes and No   **          (2)
```

16. Do you know precisely what is expected of you?

```
A. Yes          ********    (8)
B. No           ***         (3)
C. Yes and No   *           (1)
```

17. Is the provided On-The-Job training adequate?

```
A. Yes            ******   (7)
B. No             ****     (4)
C. Yes and No              (0)
D. N/A            *        (1)
```

18. If you have experienced civilian supervision while assigned to AC, how well do you feel it is "in tune" with your military career goals?

```
A. It is "in tune".      *****   (5)
B. It is not "in tune".  **      (2)
C. Somewhat              **      (2)
D. N/A                   ***     (3)
```

Section 4: Workload

19. Is the quantity of work reasonable, in your opinion?

```
A. Yes            ******   (6)
B. No             ******   (6)
C. Yes and No              (0)
```

20. Is the opportunity provided (desired) to learn several different facets of the acquisition process?

```
A. Yes            ******   (6)
B. No             ******   (6)
C. Yes and No              (0)
```

Section 5: Scope of Issues

21. In your opinion, do your peers in other organizations have the same feelings that you have expressed in this survey?

```
A. Yes  ********* (9)
B. No             (0)
C. N/A  ***       (3)
```

22. Are there issues that you think should be addressed by the organization as a whole?

Not using range of knowledge or expertise.
Rotation of officers through functional areas.
Lack of performance feedback.

Lack of challenge.
Lack of visibility.
Busy work/routine tasks
Lack of responsibility/authority
Lack of tangible results
Respect for Jr. Officers
Job training mismatch

Appendix B: <u>Questions</u> <u>Used</u> <u>to</u> <u>Interview</u>
<u>Company</u> <u>Grade</u> <u>Officers</u>

Background:

What type of program do you work in (single SPO, multiple SPO, AC Staff)?

What type of specialized training have you had?

Have you been assigned to any other bases?

What is your Duty Title?

Job Duties:

Tell me a little about the work you do.

Job Information:

Do you get to see the results of your work?

Do you feel the work you do is important?

Do you see how what you are doing fits into the overall process?

Are there any barriers to getting the work done or doing it the way you would like to do it?

Do you get a chance to participate in setting goals for your organization?

Job Challenge:

How much challenge do you typically have in your job? By challenge, I mean how much does your job make full use your skills and abilities?

Job Variety:

Do you consider your job to have a lot of variety in it, or does it tend to rather repetitive and routine?

Job Autonomy:

How much autonomy and decision making authority do you have over matters that affect your work. In other words, how much latitude do you have to make decisions which pertain to your job?

Environment:

What kinds of things do you need from other units to do
your job?

Are working conditions with other units smooth and
trouble free, or do uncertainties and problems arise?

Matrix Organization:

Do you feel the matrix structure has a positive or
negative affect on the ability to do your job?

Job Redesign:

What kinds of changes would you like to see take place
in your organization, if any?

Do you think your job could be improved to better
utilize your skills and abilities? How?

SCN 88-58

<u>BACKGROUND</u>   Expires 31 July 88

This section of the survey contains several items dealing with
personal characteristics. This information will be used to
obtain a picture of the background of the "typical employee".

1.   What is your age?
      1.   Less than 20 years
      2.   20 to 25 years
      3.   26 to 30 years
      4.   31 to 40 years
      5.   41 to 50 years
      6.   51 to 60 years
      7.   More than 60 years

2.   Your rank is:
     1.   2Lt
     2.   1Lt
     3.   Captain
     4.   Major
     5.   Lt Col
     6.   Colonel
     7.   Other _____

3.   Your AFSC is:
     1.   27XX
     2.   67XX
     3.   Other _____

4.   Your highest educational level obtained is:
     1.   Bachelor's degree
     2.   Some graduate work
     3.   Master's degree
     4.   Doctoral degree
     5.   Other _____

5.   What was your primary area of study:
     1.   Engineering
     2.   Business
     3.   Technical (other than engineering)
     4.   Arts
     5.   Other _____

6.   How many months have you been in your present assignment?
     1.   Less than 1 month
     2.   More than 1 month, less than 6 months
     3.   More than 6 months, less than 12 months
     4.   More than 12 months, less than 18 months
     5.   More than 18 months, less than 24 months
     6.   More than 24 months, less than 36 months
     7.   More than 36 months

7. Total months in present AFSC:
   1. Less than 1 month
   2. More than 1 month, less than 6 months
   3. More than 6 months, less than 12 months
   4. More than 12 months, less than 18 months
   5. More than 18 months, less than 24 months
   6. More than 24 months, less than 36 months
   7. More than 36 months

JOB SATISFACTION

Using the scale below, please indicate how satisfied/dissatisfied you are with each of the following aspects of your job.

   1 - Very dissatisfied
   2 - Dissatisfied
   3 - Neither satisfied nor dissatisfied
   4 - Satisfied
   5 - Very satisfied

8. Being able to keep busy all the time

9 The chance to work alone on the job

10. The chance to do different things from time to time

11. The chance to be an important member of the community

12. The way my boss handles his or her people

13. The competence of my supervisor in making decisions

14. Being able to do things that don't go against my conscience

15. The way my job provides for steady employment

16. The chance to do things for other people

17. The chance to tell people what to do

18. The chance to do something that makes use of my abilities

19. The way policies are put into practice

20. My pay and the amount of work I do

21. The chance for advancement on the job

22. The freedom to use my own judgement

1 — Very dissatisfied
2 — Dissatisfied
3 — Neither satisfied nor dissatisfied
4 — Satisfied
5 — Very satisfied

23. The chance to try my own method of doing the job

24. The working conditions

25. The way my co-workers get along with one another

26. The praise I get for doing a good job

27. The feeling of accomplishment I get for doing a good job

28. Enjoying the work itself

JOB INFORMATION

In this section you are asked to describe your job as objectively as possible. For each item choose the number which most accurately describes your job.

29. To what extent does your job require you to work closely with other people (either "clients" or people in related jobs in your own organization)?

```
1--------2--------3--------4--------5--------6--------7
```
Very little; dealing with other people is not at all necessary in doing the job.	Moderately; some dealing with others is necessary.	Very much; dealing with other people is an absolutely essential and crucial part of doing the job.

30. How much autonomy is there in your job? That is, to what extent does your job permit you to decide on your own how to go about doing the work?

```
1--------2--------3--------4--------5--------6--------7
```
Very little; the job gives me almost no personal "say" about how and when the work is done.	Moderate autonomy; many things are standardized and not under my control, but I can make some decisions about the work.	Very much; the job gives me almost complete responsibility for deciding how and when the work is done.

31. To what extent does your job involve doing a whole or
    identifiable piece of work? That is, is the job a complete
    piece of work that has an obvious beginning and end? Or is it
    only a small part of the overall piece of work, which is
    finished by other people or by automatic machines?

```
        1--------2--------3--------4--------5--------6--------7
```

My job is only a small part of the overall piece of work; the results of my activities cannot be seen in the final product or service.	My job is a moderate size "chunk" of the overall piece of work; my own contribution can be seen in the final outcome.	My job involves doing the whole piece of work, from start to finish; the results of my activities are easily seen in the final product or service.

32. How much variety is there in your job? That is, to what
    extent does the job require you to do many different things
    at work, using a variety of your skills and talents?

```
        1--------2--------3--------4--------5--------6--------7
```

Very little; the job requires me to do the same routine things over and over again.	Moderate variety.	Very much; the job requires me to do many different things, using a number of different skills and talents.

33. In general, how significant or important is your job? That
     is, are the results of your work likely to significantly
     affect the lives or well-being of other people?

```
        1--------2--------3--------4--------5--------6--------7
```

Not very significant; the outcomes of my work are not likely to have important effects on others.	Moderately significant.	Highly significant; the outcomes of my work can affect other people in very important ways.

34. To what extent do managers or co-workers let you know how well you are doing on the job (other than OERs)?

```
1--------2--------3--------4--------5--------6--------7
```

Very little; people
almost never let me
know how well I am
doing.

Moderately; sometimes
people may give me
"feedback"; other
times they may not.

Very much;
managers or co-
workers provide
me with almost
constant "feed-
back" about how
well I am doing.

35. To what extent does doing the job itself provide you with information about your work performance? That is, does the actual work itself provide clues about how well you are doing. This is aside from any "feedback" co-workers or supervisors may provide?

```
1--------2--------3--------4--------5--------6--------7
```

Very little; the
job itself is set
up so I could
work forever
without finding
out how well I
am doing.

Moderately; sometimes
doing the job
provides "feedback"
to me; sometimes it
does not.

Very much; the
job is set up so
that I get almost
constant "feed-
back" as I work
about how well I
am doing.

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JOB DESCRIPTION

Listed below are a number of statements which could be used to describe a job. You are to indicate whether each statement is an accurate or inaccurate description of your job. Once again, please try to be as objective as you can in deciding how accurately each statement describes your job.

     1 - Very Inaccurate
     2 - Inaccurate
     3 - Slightly Inaccurate
     4 - Uncertain
     5 - Slightly Accurate
     6 - Accurate
     7 - Very Accurate

36. The job requires me to use a number of complex or high-level skills.

37. The job requires a lot of cooperative work with other people.

38. The job is arranged so that I do not have a chance to do an entire piece of work from beginning to end.

39. Just doing the work required by the job provides many chances for me to figure out how well I am doing.

40. This job is quite simple and repetitive.

41. The job can be done adequately by a person working alone, without talking or checking with other people.

42. The supervisors and co-workers on this job almost never give me any "feedback" about how well I am doing in my work.

43. This job is one where a lot of people can be affected by how well the work gets done.

44. The job denies me any chance to use my personal initiative or judgement in carrying out the work.

45. Supervisors often let me know how well they think I am performing on the job.

46. The job provides me the chance to completely finish the pieces of work I begin.

47. The job itself provides few clues about whether or not I am performing well.

```
1 - Very Inaccurate
2 - Inaccurate
3 - Slightly Inaccurate
4 - Uncertain
5 - Slightly Accurate
6 - Accurate
7 - Very Accurate
```

48. The job gives me considerable opportunity for independence and freedom in how I do the work.

49. The job itself is not very significant or important in the broader scheme of things.

CHALLENGE

Use the following scale to describe how challenging you consider your work.

```
1 - Strongly Disagree
2 - Disagree
3 - Slightly Disagree
4 - Neither Agree nor Disagree
5 - Slightly Agree
6 - Agree
7 - Strongly Agree
```

50. The job itself is challenging and interesting.

51. Program management work is more interesting and challenging than program control work.

52. The job itself requires very little use of my talents or skills

TRAINING AND EDUCATION

Use the same scale to describe the amount of training and education you have received to do your job.

53. A technical background is necessary to do my job.

54. A technical background is helpful in doing my job.

55. I have received the proper amount of training to do my job.

THE MATRIX ORGANIZATION

Use the following scale to describe how you feel about the matrix organization.

1 - Strongly Disagree
2 - Moderately Disagree
3 - Slightly Disagree
4 - Neither Agree nor Disagree
5 - Slightly Agree
6 - Moderately Agree
7 - Strongly Agree

56. The Program Control Division has total control over the placement of its personnel.

57. The matrix organization is a good way to manage personnel.

58. The Program Control Division is aware of how well I do my job.

59. I do not know much about how a matrix organization operates.

COMMENTS

Please use the following section to describe what changes (if any) you feel should be made in your organization. Include also any changes you would like to see made in your particular job situation.
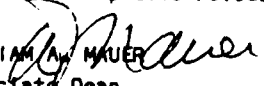
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    Minnesota.

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VITA

Captain Thomas E. Connors was born on ██████████████ ██████████████████████ He graduated from Our Lady of Providence High School Preparatory Seminary, Providence, Rhode Island, in 1976 and joined the U. S. Air Force that same year. He received his commission through Officer Training School in March 1981. He was then assigned to Resource Plans Division at Cannon AFB, New Mexico, as a Mobility Officer until May 1983. Captain Connors was then assigned to the Resource Plans Division of Zweibrucken AFB, Germany as a Resource Plans Officer until entering the School of Logistics, Air Force Institute of Technology, in June 1987.

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Thesis Chairman: Robert P. Steel
Associate Professor of Management
and Organizational Behavior

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School of Systems and Logistics
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The purpose of this study was to determine the specific factors contributing to morale problems of company grade officers in an Air Force Program Control office. Several diagnostic tools were used for this purpose including an open-ended survey designed and distributed by the employees, employee interviews conducted by an external consultant, and a survey questionnaire distributed by the external consultant. The survey questionnaire incorporated parts of the Job Diagnostic Survey, the Minnesota Satisfaction Questionnaire and also items pertaining to the issues of training, challenge, and the matrix organization. This survey was distributed to the target organization and two comparison groups, one with similar organizational structure and duties, and another without the matrix organization structure.

The data were collected and compared to normative data collected on the five core dimensions of the Job Characteristics Model. This analysis showed that the problems that do exist are not isolated to the target organization and therefore may be job related. A Job Redesign Team was formed of employees from the target organization. Using the information collected, the Job Redesign Team will submit to management a written proposal for job redesign. Management will have final approval authority over the actual job redesign to be implemented.

This study completes the diagnostic phase of this project. If the organization and the field of job redesign are to realize any tangible benefits, the project should continue to the implementation and evaluation phases.